FLOWER SEASONS

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THE statements made here are based upon observations made from 1884 to 1913, at Carlinville, Illinois, regarding the blooming seasons of 470 indigenous and 54 introduced entomophilous (insect pollinated) flowers. Twenty-three native and seven introduced species, with an average of five days, are excluded as fragmentary. The blooming time of each flower includes early dates for early seasons and late dates for late ones, and is therefore, when correct, longer than the time for a single season. Unless otherwise specified the statements relate to indigenous species.

March—The season opens on the 15th and shows only 21 plants in bloom for the month. Nevertheless, March shows the highest percentages of trees, 19.0; shrubs, 14.3; woody plants in general, 33.3; acaulescent herbs, 23.8; and white flowers, 57.1; Salicaceæ, 9.5; Parietales, 23.8; Ranales, 19.0; Caryophyllales, 14.2;, and Polemoniales, 9.5; Thalamifloræ, 61.9, and Archiclamydeæ, 85.7—all of the characteristic early groups, except Monocotyledons and woody climbers.

April—This month shows the highest percentages of flowers coming in bloom, 78.6; greenish-yellow flowers, 17.4, and non-social flowers, 75.7; Coronarieæ, 9.7; Ranunculaceæ, 11.6; Cruciferæ, 8.7; Rosaceæ, 8.7; Liliaceæ, 8.7, and Violaceæ, 7. 7. The Parietales and Salicaceæ show April maxima.

May—The following show May maxima: Monocotyledons, Thalamifloræ and Archiclymydeæ; Ranales, Coronarieæ and Umbellales; Orchidaceæ, Caryophyllaceæ, Rosaceæ, Ranunculaceæ, Cruciferæ, Liliaceæ and Umbelliferæ; trees, woody plants in general, pendulous flowers and greenish-yellow flowers. May shows the highest percentages of Calycifloræ, 29.1; Monocotyledons, 14.0, and Umbelliferæ, 6.0. Half the families with more than six species have May maxima. May shows more suborders, families and genera than August, and more families at the maximum, but the groups are represented by fewer species. Therefore, if the fourteen families with more than six species are thrown together, August will show the maximum of species. Only 16.5 per cent. of May flowers bloom through the month, while 58.6 per cent. of August flowers

are continuous. The Inferæ begin to form a marked element of the flora.

June—No dominant groups, except Polemoniales, show a maximum in June. They have less influence in the composition of the June flora than in that of any other month. All are declining from an early maximum or rising to a late one. June shows a maximum of woody climbers, all of the species blooming in the month, and of shrubs, but fewer species than in May. It is the most heterogeneous, having the most orders and the most families, and more genera than any other month except July, which has the same number.

June has the most discontinuous blooming seasons. The Scrophulariaceæ, Rosales, Parietales and Thalamifloræ show depressions. June 2 has fewer flowers in bloom than any other day from May 10 to September 24. More species, and a higher percentage of species, go out of bloom than in any other month except September and October, which close the season. In number beginning to bloom it is exceeded only by July. Uniting those beginning and ending gives the highest number for any month. The difference between the percentage of flowers and the percentage in bloom together is greatest for June. The Personales, Lamiales, Compositæ and Papilionaceæ enter as important elements of the flora.

July—The Calycifloræ, Bicarpellatæ, Rosales, Gentianales, Asclepiadaceæ, Papilionaceæ, white flowers, and introduced plants show July maxima. It has the highest percentages of perennial herbs, 72.0, Rosales, 16.4, and Papilionaceæ, 10.0. The Bicarpellatæ for the first time surpass the Calycifloræ. The dark colors begin to preponderate over yellow, including greenish-yellow. Woody plants form only 8.0 per cent. of the July flora. It shows the most flowers beginning to bloom, and more genera than any other month except June, which has the same number.

Comparing July and August gives the following percentages: Of the flora, 53.1, 51.4; of flowers of the month blooming through the month, 37.6, 58.6; of flora in bloom at maximum, 41.7, 42.7. July has the most flowers in bloom, but fails to show the maximum on account of less continuous blooming.

August—This month shows maxima for Inferæ, Asterales, Compositæ, Alismaceæ, the general entomophilous flora, zygomorphous, dark colored, yellow flowers and perennial herbs. The most remarkable thing about August is that 142 of its species, 58,6 per cent., bloom through the month. The nearest approach to this is July with only 94 species, 37.6 per cent. continuous. This is directly connected with the long blooming seasons of the later flowers. The effect of this is that July, while it has eight more species in bloom

in the month, shows five less in bloom simultaneously and that only on the last day. In the case of the Asterales, also, there are three more species in bloom in September, but one less at the highest point of those in bloom together. The position of the principal groups of Dicotyledons is just the reverse of what is found in May. August differs from May in having fewer dominant maxima, but in having more species in each. Only 16.5 per cent. of May flowers are continuous, while 58.6 per cent. of August flowers are so. August has the highest percentage of Personales, 7.4.

September—The characteristic of September is the decline of general flora. While in August only 51 plants, 21.0 per cent., go out of bloom, in September 115, 57.2 per cent., do so. September shows the highest percentages of dark flowers, 32.3, yellow, 29.3, Lamiales, 11.4, and Labiatæ, 8.9. It shows a maximum for Convolvulaceæ.

October—The flora is 24.7 per cent. less than in August and 3.9 less than April. It has the highest percentages of social flowers, 60.4; annuals and biennials, 42.3; Asterales, 47.0; Polygonaceæ, 9.4; Inferæ, 50.6, and Sympetalæ, 70.5.

A peculiarity of October is connected with the differences in the blooming habits of indigenous and introduced plants. The indigenous ones bloom a shorter time and have become adjusted to the climate so that they decline in anticipation of the approaching cold. The introduced plants average twice as long and often quit blooming only when they are frozen. In October 18.0 per cent. of the indigenous and 64.1 per cent. of the introduced plants are in bloom. While the introduced plants are only 10.1 per cent. of the total flora, they are 28.5 per cent. of the flowers in bloom in October, 39.1 per cent. of the flowers blooming after October 16th.

Another peculiarity of October is that the Thalamifloræ predominate over the Calycifloræ for the first time since April. This helps to explain the higher percentage of white flowers in October over September.

November—This is altogether fragmentary and shows only in unusually late seasons. There are eight indigenous, 57.1 per cent., and six introduced species, 42.8 per cent.